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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/754,930 | 01/08/2004 | Christophe Maleville | 4717-8400 | 9223 |
| 28765 | 7590 | 06/28/2004 | EXAMINER | |
| WINSTON & STRAWN PATENT DEPARTMENT 1400 L STREET, N.W. WASHINGTON, DC 20005-3502 | | | ROCCHEGIANI, RENZO | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2825 | |

DATE MAILED: 06/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicant(s)

10/754,930

Applicant(s)

MALEVILLE ET AL.

Examiner

Renzo N. Rocchegiani

Art Unit

2825

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 January 2004.
2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-19 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 01/08/2004.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 3-13, 15-16 and 18-19 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent No. 6,372,609 B1 (Aga et al.).

Aga et al. disclose a process of treating a superficial zone of a transferred SOI layer (col. 5, lines 45-67 and col. 6, lines 1-20) before conducting RTA to prevent pitting during the RTA. The process comprises conducting a temperature annealing in a neutral atmosphere at a temperature of 1000 to 1300 degree C. (col. 6, lines 20-35) The process also comprises removing a disturbed portion of the superficial zone by a chemical attack that includes wet etching. (col. 6, lines 20-67) The chemical attack includes a sacrificial oxidation that comprises an oxidation, anneal and deoxidation step. (col. 6, lines 20-67) The oxidation and anneal are carried out at less than 1000 degree C (col. 7, lines 52-58) and at a constant temperature. The deoxidation step comprises the use of a solution that removes a few thousand angstroms of material wherein the solution comprises a 10% HF solution. (col. 10, lines 35-50)

The examiner points out that even though applicant points out on page 4 and 5 of

Art Unit: 2825

the specification that Aga et al. discloses that COPS may extend down to the embedded oxide, this language "may" does not exclude the "pitting" that is addressed in the pending application, thus the process disclosed in Aga et al. still anticipates the claimed subject matter of the present application.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 6,372,609 B1 (Aga et al.) in view of admitted prior art (p. 1 of specification).

As stated in paragraph 2, all the limitations of this claim have been met except for teaching that the RTA is performed in a non-reducing atmosphere.

Applicant admits that it is well known in the prior art to conduct an RTA either in a reducing or in a non-reducing atmosphere. (specification p. 1).

It would have been obvious to one with ordinary skill in the specific art to combine the teachings admitted to be well known in the prior art to the invention of Aga et al., since according to applicant's admission one with ordinary skill in the art would be aware of RTA with or without a reducing atmosphere and thus know that these processes may be successfully interchanged.

Art Unit: 2825

5. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 6,372,609 B1 (Aga et al.) in view of US Patent No. 5,989,981 (Nakashima et al.).

As stated in paragraph 2, all the limitations of this claim have been met except for specifying that the anneal step overextends the oxidation process and that the anneal process comprises a ramping up period.

Nakashima et al. teaches that the oxidation step may be shorter than the anneal step that is performed concurrently during the oxidation of a surface of a transferred SOI to reduce the surface roughness. (col. 9, lines 60-67 and col. 10, lines 1-5).

It would have been obvious to one with ordinary skill in the specific art to combine the teachings of Nakashima et al. to those of Aga et al., since Nakashima et al. teach that this oxidation process is interchangeable with other well known processes in the art (col. 9, lines 30-40) and thus one with ordinary skill in the art being aware of the interchangeability would have an expectation of success.

6. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 6,372,609 B1 (Aga et al.) in view of US Patent No. 6,566,198 (Park et al.).

As stated in paragraph 2, all the limitations of this claim have been met except for specifying that after the RTA process another sacrificial oxide is formed.

Park et al. teaches the formation of CMOS over SOI and teaches that a sacrificial oxide may be formed after the SOI is ready for manufacturing of the CMOS. (col. 3, lines 20-30).

Art Unit: 2825

It would have been obvious to one with ordinary skill in the specific art to combine the teachings of Park et al. to those of Aga et al. and form a sacrificial oxide, since in the formation of CMOS Park et al. teaches the desire of forming bird beaks and this involves the formation of a sacrificial oxide. (see Park et al. , col. 3, lines 20-30).

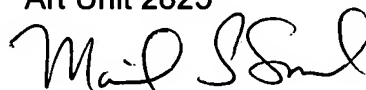
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Renzo N. Rocchegiani whose telephone number is (571)272-1904. The examiner can normally be reached on Mon.-Fri. 8:00 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Smith can be reached on (571)272-1907. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Renzo N. Rocchegiani
Examiner
Art Unit 2825



MATTHEW SMITH
SUPERVISORY PATENT EXAMINER
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